

What is claimed is:

1. An oxygen-scavenging polymer composition which comprises:

- Sub A2
- a) at least one ethylene vinyl alcohol copolymer;
  - b) at least one oxidizable polydiene; and
  - c) at least one metal salt catalyst.

2. The composition of claim 1 wherein the oxidizable polydiene comprises a polybutadiene.

10 3. The composition of claim 1 wherein the oxidizable polydiene comprises an epoxy or anhydride functional polybutadiene.

15 4. The composition of claim 1 wherein the oxidizable polydiene comprises particles which are substantially uniformly distributed in the polymer composition.

Sub A2

20 5. The composition of claim 1 wherein the oxidizable polydiene comprises particles whose average particle size is in the range of from about 10 nm to about 5000 nm, and which particles are substantially uniformly distributed in the polymer composition.

6. The composition of claim 1 wherein the metal salt catalyst is a metal carboxylate salt.

25 7. The composition of claim 1 wherein the metal salt catalyst is selected from the group consisting of metal acetates, stearates, propionates, hexanoates, octanoates, benzoates, salicylates, cinnamates and combinations thereof.

30 8. The composition of claim 1 wherein the metal salt catalyst is selected from the group consisting of a cobalt, copper or ruthenium, acetate, stearate,

propionate, hexanoate, octanoate, benzoate, salicylate or cinnamate, and combinations thereof.

9. The composition of claim 1 further comprising a base catalyst.

10. The composition of claim 1 wherein ethylene vinyl alcohol copolymer is retortable.

11. The composition of claim 1 further comprising a clay.

12. The composition of claim 1 further comprising a clay whose average platelet thickness is in the range of from about 1 nm to about 100 nm and whose average length and average width are each in the range of from about 50 nm to about 500 nm.

13. The polymer composition of claim 1 wherein the composition comprises a blend of at least one ethylene vinyl alcohol copolymer, at least one oxidizable polydiene, and at least one metal carboxylate salt catalyst.

14. The polymer composition of claim 1 wherein the composition comprises a reaction product of at least one ethylene vinyl alcohol copolymer, at least one oxidizable polydiene, and at least one metal carboxylate salt catalyst.

15. An oxygen barrier film comprising a layer of a polymer composition which comprises:

- a) at least one ethylene vinyl alcohol copolymer;
- b) at least one oxidizable polydiene; and
- c) at least one metal salt catalyst.

16. The oxygen barrier film of claim 15 which is oriented.

Sub A3

17. The oxygen barrier film of claim 15 further comprising a thermoplastic polymer layer on one or both sides of the polymer composition layer.

5 18. The oxygen barrier film of claim 15 wherein the polymer composition further comprises a clay.

10 X 19. A multilayer article which comprises:  
a) a polymer composition layer comprising at least one ethylene vinyl alcohol copolymer; at least one oxidizable polydiene; and at least one metal salt catalyst;  
and  
b) a thermoplastic polymer layer on one or both sides of the polymer composition layer.

15 X 20. The multilayer article of claim 19 wherein the thermoplastic polymer layer comprises a polyolefin, polyester, or polycarbonate.

X 21. The multilayer article of claim 19 wherein the thermoplastic polymer layer comprises a polyethylene terephthalate.

20 X 22. The multilayer article of claim 19 wherein the thermoplastic polymer layer and polymer composition layer are attached to one another by coextrusion, lamination or coinjection.

25 X 23. The multilayer article of claim 19 wherein the polymer composition layer further comprises a clay.

24. A shaped article which comprises a polymer composition comprising:

- a) at least one ethylene vinyl alcohol copolymer;  
b) at least one oxidizable polydiene; and

Sub A5  
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c) at least one metal salt catalyst.

25. The shaped article of claim 24 wherein the polymer composition further comprises a clay.

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26. The shaped article of claim 24 which is in the form of a bottle or container.

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27. A process for producing a polymer composition which comprises:

a) melting at least one ethylene vinyl alcohol copolymer;

10 b) blending the molten copolymer with at least one oxidizable polydiene and at least one metal salt catalyst to thereby form a mixture; and

c) cooling the mixture.

Sub A6  
28. The process of claim 27 which comprises a clay preblended with the  
15 ethylene vinyl alcohol copolymer.

29. A process for producing an oxygen barrier film which comprises:

a) melting at least one ethylene vinyl alcohol copolymer;

b) blending the molten copolymer with at least one oxidizable polydiene and at  
20 least one metal salt catalyst to thereby form a mixture;

c) extruding, casting or blowing the mixture into a film; and

d) cooling the film.

Sub A7  
30. The process of claim 29 wherein the film is subsequently oriented in at  
25 least one direction.

31. The process of claim 29 which comprises a clay preblended with the ethylene vinyl alcohol copolymer.

Sub A8  
32. A process for producing an oxygen barrier polymer film which comprises:

- a) melting a composition which comprises at least one ethylene vinyl alcohol copolymer; at least one oxidizable polydiene; and at least one metal salt catalyst;  
b) extruding, casting or blowing the composition into a film; and  
c) cooling the film.

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33. A process for producing a multilayer article which comprises:

- a) melting at least one ethylene vinyl alcohol copolymer; at least one oxidizable polydiene; and at least one metal salt catalyst to thereby form a mixture;  
b) separately melting a thermoplastic polymer composition;  
c) coextruding, casting, blowing, thermoforming, blow molding or coinjecting the mixture and thermoplastic polymer composition into a multilayer article; and  
d) cooling the article.

15 34. The process of claim 33 wherein the article is in the form of a film, a bottle or a container.

35. The process of claim 33 wherein the article is a film which is subsequently oriented in at least one direction.

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36. The process of claim 33 wherein said copolymer is melted prior to blending with said oxidizable polydiene.

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37. The process of claim 33 wherein said copolymer and said oxidizable polydiene are melted after blending.

38. The process of claim 33 which comprises a clay preblended with the ethylene vinyl alcohol copolymer.

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~~39. A process for producing a multilayer article which comprises:~~

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- a) melting at least one ethylene vinyl alcohol copolymer; at least one oxidizable polydiene; and at least one metal salt catalyst to thereby form a mixture;  
b) separately melting a thermoplastic polymer composition;  
c) coinjecting molding the mixture and thermoplastic polymer composition into a multilayer preform;  
d) reheating the preform; and  
e) blow molding the preform into a multilayer article.

40. A multilayer article formed by the process of claim 39.

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